

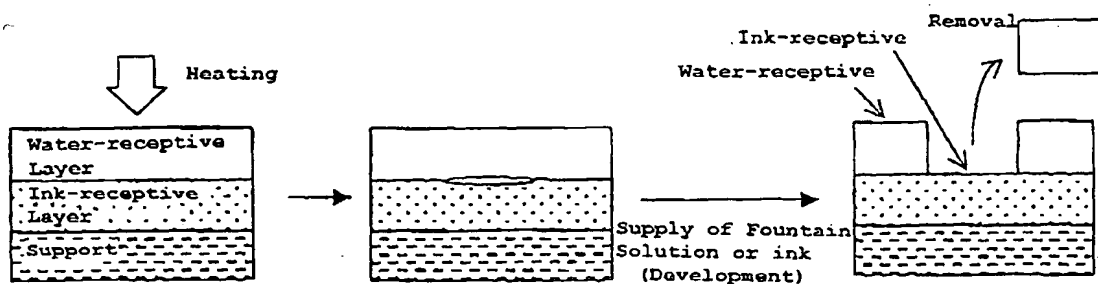
**REMARKS**

By the present Amendment, minor revisions have been made throughout the specification and new claims 7-11 have been added to encompass additional aspects of the present invention that are supported by the specification. For instance, new claim 7 defines a mixture of solvents including alcohol as the main solvent, as well as the solvent capable of dissolving the organic high molecular compound of the ink-receptive layer. This recitation is supported by the specification such as on page 20, first full paragraph and can be further understood with respect to Example 3 which discloses the presence of both methanol and ethylene glycol monomethyl ether and Comparative Example 2 wherein the ether compound is replaced with methanol (see page 39). Hence, it can be understood that in this aspect of the invention, the alcohol does not serve as the solvent which dissolves the organic high molecular compound of the ink-receptive layer.

The support for the recitations of claims 8-10 can be found on pages 23-25 and the support for claim 11 may be found in the paragraph bridging pages 19 and 20 wherein it is stated that cross-linking agents or hydrophilic resins **may** be added to the water-receptive layer. In this respect, the hydrophilic resins of the Examples are not described as including a cross-linking agent.

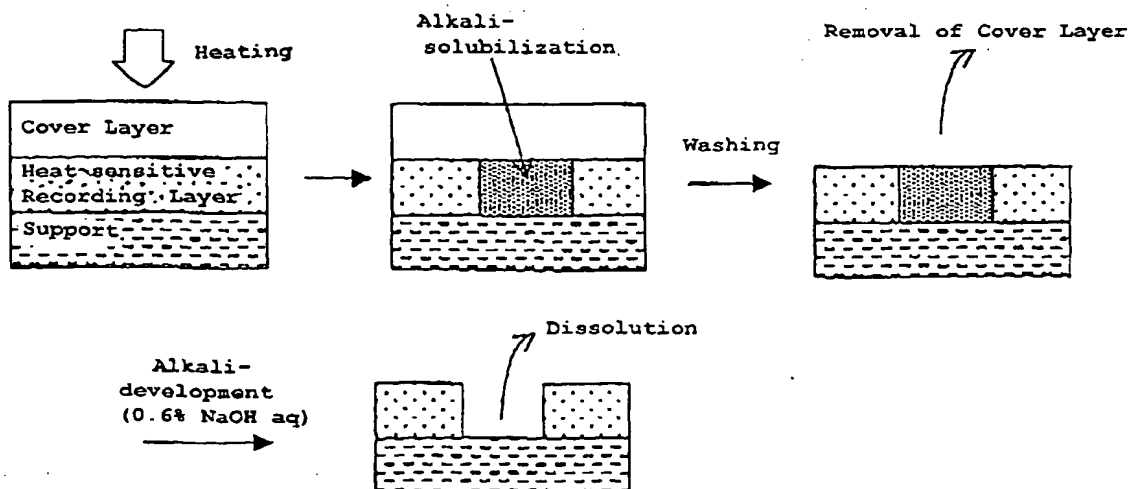
The present Amendment does not amend sole independent claim 1 since applicant respectfully maintains that such claim and the claims which depend therefrom are neither anticipated nor rendered obvious by the documents identified in the Official Action. To provide a greater understanding of the present invention and how it is different from the cited documents, applicant notes that in the present invention, the heat-sensitive

lithographic printing plate precursor is defined as having on a support (1) an ink-receptive layer comprising an oleophilic organic high molecular compound and (2) a water-receptive layer easily allowing removal by a fountain solution or printing ink when heated, which are present in the defined order, with the water-receptive layer being a layer formed using a coating solution comprising a solvent capable of dissolving the organic high molecular compound of the ink-receptive layer in a proportion of 1 to 40 wt. % of the total solvent in the coating solution. Since the water-receptive layer is removed by the fountain solution or printing ink after being heated, the image formation sequence may be illustrated as follows:



When the water-receptive layer is formed on the ink-receptive layer in the manner defined in the claims, the water-receptive layer and the ink-receptive layer are dissolved at the interface between the layers or the water-receptive layer is penetrated into the interface of the ink-receptive layer that is swollen by the solvent and the adhesion between the two layers is increased relative to the situation wherein the defined solvent is absent. Such result can be understood by comparing the Inventive Examples with Comparative Example 1 on page 38 and Comparative Example 2 on page 39 wherein the specified solvent capable of dissolving the organic high molecular compound of the ink-receptive layer is absent.

The documents cited in the Official Action do not disclose or suggest any aspect of the present invention. In particular, Brinkman et al., Published GB Patent Specification No. 1245924 relates to a heat-sensitive recording material comprising a heat-sensitive recording layer of a composition such that the solubility of any given area of the layer in a given solvent can be increased by heating that area of the layer and which uses a solvent to cause portions of the recording layer to be removed or penetrated by the solvent. The Examiner has referred to Example 15 of the document which includes a polyethylene terephthalate film coated with a solution of cresol-formaldehyde resin in ethanol and which is further provided with a covering layer containing a gelatin carbon dispersion, a polyoxyethylene resin, water, ethanol and an aqueous solution of saponine. As plainly stated at page 9, lines 79-86, upon exposure, the complete covering layer is removed with running water and the material is rinsed in an aqueous solution of sodium hydroxide in order to remove the exposed areas of the cresol-formaldehyde resin layer. In other words, the image formation may be illustrated as follows:



From the foregoing illustration, it can be understood that a totally different arrangement is disclosed. In contrast to the present invention wherein heating allows removal of portions of the water-receptive layer by a fountain solution or printing ink with the ink-receptive layer remaining intact, Brinkman et al. includes a cover layer that can be removed by water (which is akin to the separate water-soluble overcoat layer now defined in new dependent claim 9) and removes portions of the heat-sensitive recording layer. Thus, Brinkman et al. does not describe the present invention and following the teachings of this document would lead directly away from the aforementioned advantage of the present invention of having a firm adhesion between the ink-receptive layer and the water-receptive layer. Accordingly, the claims of record are patentable over the teachings of Brinkman et al.

DeBoer et al., U.S. Patent No. 6,110,645, also does not disclose or suggest the presently claimed invention. The patent does not seek to use a solvent for the top layer which is capable of dissolving the organic high molecular compound of an ink-receptive layer, and also does not inherently provide this feature of the present invention. In particular, the Examiner has referred to Example 3 wherein nitrocellulose is used to form a first layer from a solution containing methylethylketone and methylisobutylketone.

The Examiner has asserted that the mixture of Example 3 which was coated onto the carbon-nitrocellulose coated support of Example 1 meets the defined structure set forth in claims 1 and 5-6. Such position is not justified by the express teachings of the patent. In

the first place, it is not certain that ethanol is capable of dissolving nitrocellulose.<sup>1</sup> It will further be noted that on page 20 of the present application, the main solvent of low boiling point alcohols, such as methanol, ethanol and propenyl, are distinguished from the other solvents identified in the paragraph bridging pages 20 and 21. Thus, as noted above with respect to Example 3 and Comparative Example 2, methanol does not function as a solvent capable of dissolving the organic high molecular compound of the ink-receptive layer.

It will further be understood that even if ethanol is capable of dissolving the nitrocellulose resin, it still does not meet the recitation of claim 1 that requires the presence of the solvent in a proportion of 1 to 40 wt. % of the total solvent in the coating solution. That is, it will be appreciated from the explicit description of Example 3 that it is the 0.5 % by weight of hydrolyzed tetraethyl orthosilicate that is prepared by stirring together defined amounts of tetra orthosilicate, water, ethanol and concentrated hydrochloric acid which is the sole source of the ethanol. Since the hydrolyzed tetraethorthosilicate is present in the mixture in an amount of only 0.5 %, the amount of ethanol resulting therefrom is far below 1 %, set forth in claim 1. Hence, DeBoer et al. likewise does not disclose or render obvious any of the claims of record.

Vermeersch et al., U.S. Patent No. 6,210,857, has been further relied on for purposes of meeting claims 2-4. While applicant does not necessarily agree with the propriety of combining the respective teachings of the patents, it is evident that such

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<sup>1</sup> Provided herewith is an excerpt from a Japanese language Chemical Handbook, 2<sup>nd</sup> Edition, 1965, Page 1043) which indicates that the solubility of nitrocellulose depends on the nitrogen content.

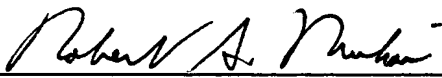
reliance does not affect the basic deficiencies of DeBoer et al. set forth above. Hence, the combination of the patents likewise does not adversely affect any of the claims of record.

For all the reasons set forth above, applicant respectfully submits that the claims of record are neither anticipated nor rendered obvious by any of the cited documents and therefore request reconsideration and allowance of the present application.<sup>2</sup>

Should the Examiner wish to discuss any aspect of the present application, she is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

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Date: January 6, 2003

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<sup>2</sup> The certified copy of the Japanese priority application is concurrently being filed thereby meeting the Examiner's point raised in Section 2 of the Action.

**Attachment to Amendment dated January 6, 2003**

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**Page 1, Paragraph Beginning at Line 3**

The present invention relates to a heat-sensitive lithographic printing plate precursor which requires no development-processing and can ensure a long press life and high stain resistance. More specifically, the present invention relates to a lithographic printing plate precursor which enables recording of images by scanning exposure to infrared laser beams based on digital signals and, after the images are recorded therein, can be mounted in a printing machine (i.e., a printing press) without undergoing development-processing and can then be subjected to printing operations.

**Page 12, Paragraph Beginning at Line 7**

Examples of a coloring agent usable in the ink-receptive layer include conventional dyes and pigments, especially such as Rhodamine 6G chloride, Rhodamine B chloride, Crystal [violet] Violet, Malachite Green oxalate, oxazine-4 perchlorate, quinizarin, 2-( $\alpha$ -naphthyl)-5-phenyloxazole and coumarin-4. Examples of other dyes which are also usable include triphenylmethane dyes, diphenylmethane dyes, oxazine dyes, xanthene dyes, iminonaphthoquinone dyes, azomethine dyes, anthraquinone dyes and the dyes disclosed in JP-A-62-293247 (the term P-A as used herein means an ~~examined~~ published Japanese Patent application and JP-A-9-179290. The representative examples of these dyes include Oil Yellow #101, Oil Yellow #103, Oil Pink #312, Oil Green BG, Oil Blue BOS, Oil Blue #603, Oil Black BY, Oil Black BS, Oil Black T-505 (products of Orient Chemical Industry

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- Co., Ltd.), Victoria Pure Blue, Crystal Violet (C.I.42555), Methyl Violet (C.I.42535), Ethyl Violet, Methylene Blue (C.I.52015), Patent Pure Blue (a product of Sumitomo Mikuni Chemical Co., Ltd.), Brilliant Blue, Methyl Green, Erythricine B, Basic Fuchsin, m-cresol purple, Auramine, 4-p-diethylaminophenyliminonaphthoquinone and cyano-p-diethylaminophenylacetanilide.

**Page 19, Paragraph Beginning at Line 12**

In addition to the aforementioned colloids hydrophilic resins and compound capable of converting light to [heats] heat, cross-linking agents capable of accelerating cross-linking of colloids may be added to the water-receptive layer of the present invention. Suitable examples of such a cross-linking agent for colloids include initial hydrolysis and condensation products of tetraalkoxysilanes, trialkoxysilylpropyl-N,N,N-trialkylammonium halides and aminopropyltrialkoxysilanes. The appropriate proportion of the cross-linking agent added is 5 weight % or less to the total solid components in the water-receptive layer.

**Page 24, Paragraph Beginning at Line 5**

When the overcoat layer is formed by application of an aqueous coating solution, nonionic surfactants can be added mainly to the aqueous coating solution for the purpose of securing uniformity in the coating. Examples of a nonionic surfactant usable for such a



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purpose include sorbitan tristearate, sorbitan monopalmitate, [sorbintan] sorbitan trioleate, stearic acid monoglyceride, polyoxyethylene nonyl phenyl ether and polyoxyethylene dodecyl ether.

**Page 25, Paragraph Beginning at Line 6**

As the compound capable of converting light to heat, any of substances capable of absorbing light of wavelengths of not shorter than 700 nm may be used, and examples thereof include various pigments and dyes. Specifically, pigments which can be utilized herein include commercially available pigments and pigments described in Color Index (C.I.) Binran (Color Index (C.I.) Handbook), compiled by Nihon Ganryo Gijutsu Kyokai (1977), Saishin Ganryo Binran (Handbook of Latest Pigments), compiled by Nihon Ganryo Gijutsu Kyokai (1977), Saishin Ganryo Oyo Gijutsu (Latest Pigment Application [Techniques] Techniques), published by CMC Publishing Co., Ltd. (1986), and Insatsu Ink Gijutsu (Printing Ink [techniques] Techniques), published by CMC Publishing Co., Ltd. (1984).

**Page 25, Paragraph Beginning at Line 19**

More specifically, various pigments, such as black pigments, brown pigments, red pigments, [purle] pearl pigments, blue pigments, green pigments, fluorescent pigments, metallic powder pigments and polymer-attaching dyes, can be exemplified. Examples of

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such pigments include insoluble azo pigments, azo lake pigments, condensed azo pigments, chelate azo pigments, phthalocyanine pigments, anthraquinone pigments, perylene and perinone pigments, thioindigo pigments, quinacridone pigments, dioxazine pigments, isoindolinone pigments, quinophthalone pigments, in-mold lake pigments, azine pigments, nitroso pigments, nitro pigments, natural pigments, fluorescent pigments, inorganic pigments and carbon black.

**Page 26, Paragraph Beginning at Line 6**

Those pigments may be used without surface treatment, or they may undergo surface treatment before use. Suitable examples of a method of treating the surface of the pigment include a method of coating the pigment surface with a hydrophilic resin or an oleophilic resin, a method of adhering a surfactant to the pigment surface and a method of attaching a reactive substance (such as silica sol, alumina sol, silane coupling agents, epoxy compounds and isocyanate compounds) to the surface of the pigment. These surface treatment methods are described in Kinzoku Sekken no Seishitsu to Oyo (Properties and Applications of Metal Soap), Saiwai Shobo Co., Ltd., Insatsu Ink Gijutsu (Printing Ink [techniques] Techniques), published by CMC Publishing Co., Ltd. (1984) and Saishin Ganryo Oyo Gijutsu (Latest Pigment Application [Techniques] Techniques), published by CMC Publishing Co., Ltd. (1986). Of the pigments described above, pigments capable of absorbing infrared radiation are much preferable in having suitability for utilization of

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infrared laser. As the pigment capable of absorbing infrared radiation, carbon black is preferred in particular.

Page 27, Paragraph Beginning at Line 7

The suitable grain size of pigment is from 0.01 to 1  $\mu\text{m}$ , preferably from 0.01 to 0.5  $\mu\text{m}$ . As a method of dispersing pigments, conventional dispersion techniques for ink or toner production can be employed. Examples of a dispersing apparatus usable therein include an ultrasonic disperser, a sand mill, an attrition mill, a pearl mill, a super mill, a ball mill, an impeller, a disperser, a KD mill, a colloid mill, a dynatron, a three-roll mill and a pressure kneader. Details of dispersion techniques are described in Saishin Ganryo Oyo Gijutsu (Latest Pigment Application [Techniques] Techniques), published by CMC Publishing Co., Ltd. (1986).

Page 35, Paragraph Beginning at Line 11

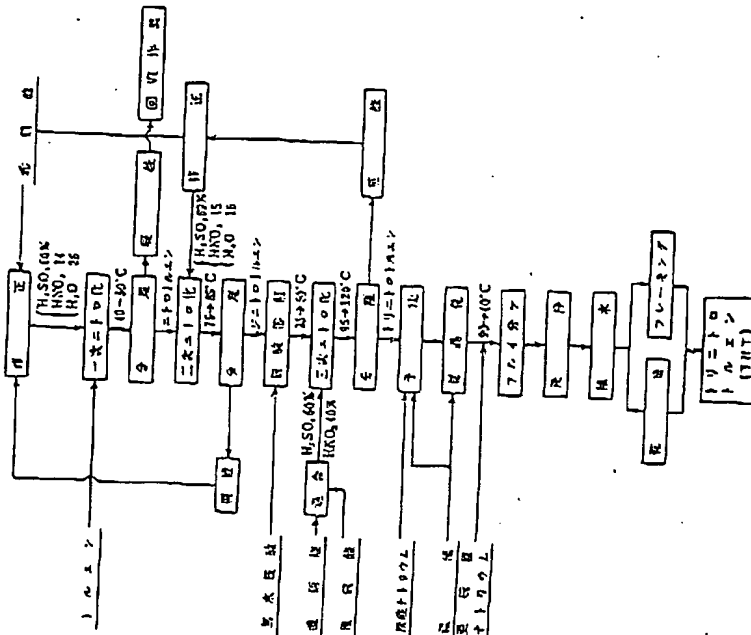
**[EXAMPLE] EXAMPLES**

## 1043

## 17.2 羧酸衍生物化合物

[illegible]

て知られる。その変化は周囲との関係で異なる。  
(で、  
問題エスサの若干についてその注意を著し、  
A-R(NO<sub>2</sub>)+B-C  
→ B-R(NO<sub>2</sub>)+A-C  
である)リニウム化合物では、  
リニウムと酸素の結合は、  
リニウムと酸素の結合は、  
リニウムと酸素の結合は、



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五

17. \*

わにしろの不良品とする。現行  
製造法で $65^{\circ}\text{C}$ で $20\text{min}$ となつて  
いれる。

これら以外には夜間製造法の  
改良はトクナゲ多く、自前にては  
ては省く方法と採用することが望  
ましい。

(1) 安全夜 夜間製造法は作  
業するとメタンガスや炭ダンの  
発生を招起することがあるが、  
ガス、炭ダンの発生を夜間の  
安全性を高めるのを安全装置を  
用い、それに効果したものでは  
ない。安全装置としては、燃焼  
装置の改良によってメタンガス  
が発生する原因として、燃焼の  
不安、燃焼による温度、燃焼の  
たばね燃焼、メタンの燃焼、メタンの  
発生を招起し、もし燃焼の発生を

[illegible]

## 17.2 强碱性化合物

17.2.1 阴イオン系  
 a. 製造方法 一般にアルコール臭の脱水化合物の誘導体の反応による。  

$$\text{—OH} + \text{HNO}_3 \rightleftharpoons \text{—O—NO}_2 + \text{H}_2\text{O}$$
 (1) 脱水アルコールの場合には硝酸が存在すると脱水反応はより急速である。脱水を加えて硝酸塩を得る。  
 (2) 多官能アルコールや脱水化合物の場合には硝酸塩との塩酸を生成することから、減圧下で脱水する。  
 (3) 脱水は通常、1:1の割合で脱水される。  
 (4) 脱水は通常、1:1の割合で脱水される。

02-12-25:12:50PM:NG8 特許部  
02-12-17: 1:46PM:富士フィルム知恵(吉)

BURNS. DOANE

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(資料1)

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